

REMARKS

Claims 1, 4, 7 and 20 have been amended.

Regarding the rejection of claims 1-6 and 20 under 35 U.S.C. §102(b) or under 35 U.S.C. §103(a) over Kerner et al., U.S. Patent No. 6,028,770, Applicants have amended claim 1, from which claims 2-6 and 20 also depend, and submit that the amended claims distinguish over Kerner.

Kerner discloses an assembly having a hybrid or other circuit components 41 that are mounted on a first printed circuit board 4 having contact surfaces connected by bonding wires 82 to second printed circuit board 5. Second printed circuit board 5 discloses a flexible print circuit board having conductors 81 which are connected at one end to bonding wires 82 and at another end to pin 61 of plug part 6. The assembly includes an upper part 1 and lower part 2 which both form a housing that may be made of metal.

Applicants' amended claim 1 calls for a heat sink assembly having an interior cavity, at least one hybrid circuit housed in the cavity, and a bottom having a plurality of interconnected pins molded therein, the pins being coupled to the interconnect locations of the at least one hybrid circuit by a wire bond.

Kerner does not teach or make obvious pins which are wire bonded to a hybrid circuit. Kerner teaches using connection pins 61 that require second flexible printed circuit board 5 be used to connect a circuit of first printed circuit board 4 to pins 61. The additional structure, connections, and complexity required by Kerner over Applicants' invention may increase costs, space, and weight requirements and may cause additional possible failure points and modes. These are some of the problems that the present invention according to claim 1 seeks to overcome (Application Paragraph 0004).

In regard to Applicants' claim 20, which also depends from claim 1, the housing assembly advantageously utilizes the vertical space relative to the printed circuit board or other external device to which the invention is connected, thereby minimizing the coupling surface area that the invention requires, often an important factor in packaging design (paragraphs 4 and 7). Kerner does not teach or make obvious orienting a hybrid circuit substantially perpendicular to a plane defined by a face of the bottom, the face attached to the cover as called for by Applicants' claim 20.

Regarding the rejection of claim 7 under 35 U.S.C. §103(a) over Kerner et al. in view of Tugcu, U.S. Patent No. 4,717,990, neither Kerner nor Tugcu taken individually or in combination disclose pins which are wire bonded to the at least one hybrid circuit or partitions separating the at least one hybrid circuit from another hybrid circuit, the hybrid circuits having separate substrates as called for by Applicants' claim 7, which depends from claim 1. The partitions advantageously allow sensitive electronics to be isolated from other more durable electronics, thereby eliminating the need to fully assemble the integrated circuit in an expensive clean room environment (Application Paragraph 0007). Additionally, partitioning of the hybrid circuits allows different substrate technologies to be integrated into a single, convenient, and cost effective package, overcoming the difficulty of combining very different substrates having dramatically different manufacturing and assembly requirements (Application Paragraphs 0002-0006).

Tugcu discloses partitions 23-26 which extend through apertures 27-30 in a single substrate circuit board 17. Therefore, Tugcu discloses partitions that separate individual circuit components, but not one hybrid circuit from another hybrid circuit having separate substrates as called for by Applicants' claim 7.

Hybrid circuits 16-24 shown in Applicants' Figure 1 are separate, multiple substrates (paragraph 6), the substrates possibly differing from each other (paragraph 15), and the circuits must be interconnected by pins 30 (Application Paragraph 0008). Therefore, Applicants' separate hybrid circuits 16-24 and partitions 25 do not comprise a single printed circuit board having apertures with partitions there through as taught by Tugcu. Additionally, Tugcu does not teach using connection pins which are wire bonded.

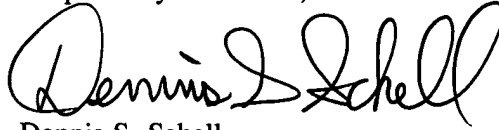
Applicants respectfully submit that claims 1 through 7 and 20, as amended, are not disclosed by nor obvious over Kerner in view of Tugcu and are therefore in condition for allowance.

In view of the foregoing, Applicants submit that the application, as amended, is in condition for allowance, and such favorable action is respectfully requested.

In the event any extension of time or payment of fee is required, Applicants hereby conditionally petition therefore and authorize any charges to be made to Deposit Account No. 02-0390, BAKER & DANIELS.

Should the Examiner have any questions or suggestions which would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at (317) 237-1117.

Respectfully submitted,



Dennis S. Schell
Registration No. 48,696

Attorney for Applicants

DSS:jak
BAKER & DANIELS
300 North Meridian St.,
Suite 2700
Indianapolis, IN 46204-1782
Telephone: 317-237-0300
Facsimile: 317-237-1000

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